

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

**WSOU INVESTMENTS, LLC D/B/A  
BRAZOS LICENSING AND  
DEVELOPMENT,**

**Plaintiff,**

**V.**

**ZTE CORPORATION, ZTE (USA)  
INC., AND ZTE (TX), INC.,**

## Defendants.

**CIVIL ACTION 6:20-cv-00490-ADA**  
**CIVIL ACTION 6:20-cv-00491-ADA**  
**CIVIL ACTION 6:20-cv-00493-ADA**  
**CIVIL ACTION 6:20-cv-00497-ADA**

## PLAINTIFF'S OPENING CLAIM CONSTRUCTION BRIEF

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Plaintiff WSOU Investments, LLC d/b/a Brazos License and Development (“WSOU”) respectfully submits this claim construction brief in support of its proposed constructions.

## **I. Legal Standards**

### **A. Claim Construction Generally**

The general rule is that claim terms are generally given their plain-and-ordinary meaning. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*); *Azure Networks, LLC v. CSR PLC*, 771 F.3d 1336, 1347 (Fed. Cir. 2014), *vacated on other grounds by* 135 S. Ct. 1846, 1846 (2015) (“There is a heavy presumption that claim terms carry their accustomed meaning in the relevant community at the relevant time.”). The plain and ordinary meaning of a term is the “meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Philips*, 415 F.3d at 1313. “Although the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.” *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)). Although extrinsic evidence can also be useful, it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)).

This Court recently explained that “[t]he ‘only two exceptions to [the] general rule’ that claim terms are construed according to their plain and ordinary meaning are when the patentee (1) acts as his/her own lexicographer or (2) disavows the full scope of the claim term either in the specification or during prosecution.” *CloudfChange, LLC v. NCR Corp.*, No. 6-19-CV-00513-ADA, 2020 WL 4004810, at \*2 (W.D. Tex. July 15, 2020) (quoting *Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). “To act as his/her own lexicographer, the

patentee must ‘clearly set forth a definition of the disputed claim term,’ and ‘clearly express an intent to define the term.’” *Id.* (quoting *Thorner*, 669 F.3d at 1365). And “[t]o disavow the full scope of a claim term, the patentee’s statements in the specification or prosecution history must represent ‘a clear disavowal of claim scope.’” *Id.* (quoting *Thorner*, 669 F.3d at at 1366). “Accordingly, when ‘an applicant’s statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable.”” *Id.* (quoting *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013)).

## **B. Indefiniteness**

The Patent Act requires claims to particularly point out and distinctly claim the subject matter regarded as the inventions. 35 U.S.C. § 112, ¶ 2. To satisfy this requirement, the claim must be read in light of the intrinsic evidence to determine whether it informs one of skill in the art at the time of the invention “about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910-11 (2014). To establish that a claim is indefinite, a patent challenger must prove indefiniteness by clear and convincing evidence. *Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

## **II. U.S. Patent No. 7,203,505 (Case No. 6:20-cv-00497) Claim Terms**

### **A. Overview of the ’505 Patent**

The ’505 patent is generally directed to techniques for transferring a data message between a first terminal device via an intermediate terminal device to a third device. ’505 patent, 1:7-12, Abstract. The ’505 patent summarizes certain technical problems in the field that existed at the time, nearly two decades ago. *Id.*, 1:13-2:17. At the time of invention, data synchronization between devices was an issue for which individual vendors had their own protocols and systems that were proprietary in nature, and therefore products from different vendors were unable to communicate with each other without special designed single purpose converters. And while there

was developed a common language for synchronizing devices and applications over a network, that standard contained three different transport alternatives, all of which shared the same defect, namely, all of the transport alternatives required a continuous data connection between a mobile device or terminal and the network. Moreover, there existed personal portable server devices that only were capable of short-range connections such as infrared or Bluetooth and were therefore unable to synchronize data with remotely located terminals outside of their limited communication range. *Id.*

In a preferred embodiment, the '505 patent provides a system including a mobile terminal such as a cell phone which is connected to a mobile network, where the mobile network is connected to a gateway which is in turn connected via the Internet to a remote server. Accordingly, the mobile terminal may communicate with the remote server. And a personal server is connected to the mobile terminal via a short-range connection such as Bluetooth or infrared. The mobile terminal in effect operates as a modem for the personal server to allow the personal server to forward messages, such as data to be synchronized to the remote server. Mobile terminals having SMS capability allow mobile terminal to format the data to be synchronized into a SMS message to be transmitted to the remote server. Because SMS is a store and forward service, a continuous data connection is not required. *Id.*, 2:61-4:52.

## **B. Disputed Claim Terms**

1. **“a formatter to format the received data into at least one SMS (Short Message Service) message” (Claim 14) / “formatting” / “formatter to format” (Claims 1, 14, 23)**

| <b>WSOU’s Proposed Construction</b> | <b>Defendant’s Proposed Construction</b>   |
|-------------------------------------|--|
| Plain and ordinary meaning          | Governed by 35 U.S.C. § 112(f)<br>Function: formatting the received data into at least one SMS (Short Message Service) message |

|  |  |
|--|--|
|  | <p>Indefinite under 35 U.S.C. § 112(b);<br/>specification fails to describe it<br/>Structure: none disclosed</p> <p>Indefinite under 35 U.S.C. § 112(b)<br/>Lack of Written description under 35 U.S.C. § 112(a)</p> |
|--|--|

These terms should get their plain and ordinary meaning. Defendant appears to seek to construe two distinct and separate sets of claim terms but count it as a single term (*see* -497 case, Dkt. 58 at 7-8), one set of terms for which Defendant contends is “Governed by 35 U.S.C. § 112(f),” namely, “a formatter to format the received data into at least one SMS (Short Message Service) message,” and a second set of terms which Defendant contends is “Indefinite under 35 U.S.C. § 112(b)” and “Lack of Written description under 35 U.S.C. § 112(a),” namely, “formatting / formatter to format.” Thus, for the *Markman* on this set of cases, Defendant is in fact seeking to construe 13 terms, directly disobeying, and attempting to circumvent, the 12-term limit for the briefing on this set of cases, as ordered by the Court in the Court’s February 26, 2021 email Order (*see* -497 case, Dkt. 58, Ex. 1 at 2-3), despite Defendant expressly acknowledging said email Order (*see* -497 case, Dkt. 58, at 1). Defendant should be required to obey the Court’s February 26, 2021 email order and narrow its disputed claim terms to 12, as it was ordered to do. Regardless, WSOU addresses both sets of claim terms below.

First, “a formatter to format the received data into at least one SMS (Short Message Service) message” requires no construction and should be afforded its plain and ordinary meaning. Because the phrase does not recite the words “means,” mean-plus-function construction under Section 112, ¶ 6, presumptively does not apply. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc). That presumption can only be overcome “if the challenger demonstrates that the claim term fails to ‘recite sufficiently definite structure’ or else recites



‘function without reciting sufficient structure for performing that function.’” *Id.* at 1349. Resolving whether the term “a formatter to format the received data into at least one SMS message” invokes Section 112, ¶ 6, depends on whether persons skilled in the art would understand the claim language to refer to structure, assessed in light of the presumption that flows from the drafter’s choice not to use the word “means.” *Samsung Elecs. Am. v. Prisia Eng’g Corp.*, 948 F.3d 1342, 1354 (Fed. Cir. 2020). The presumption stands here.

A person of skill in the art would understand the claim language to refer to structure, particularly by its recitation of “a mobile terminal device comprising...”, and where the specification provides certain exemplary embodiments, for example, the specification teaches: “Modern-day mobile terminals, such as mobile telephones, have been provided with the SMS (Short Message Service) capability.” ’505 patent, 1:66-2:1, *see also Id.*, 3:49-50. Further, the specification teaches that “[i]t is noted that SMS standards provide for sending multiple short messages which are combined by the recipient” (*Id.*, 4:8-10), showing that the SMS standard was well known at the time of the invention. Finally, the specification expressly discloses “the SMS programming in the mobile terminal” (*Id.*, 4:26-27), further confirming that mobile terminals include SMS and SMS formatting capability. Therefore, as the specification expressly discloses, SMS capability, and thus the capability to format SMS messages, were already provided into mobile terminals at the time of invention. Accordingly, while the presumption stands un rebutted that Section 112, ¶ 6, does not apply to the claim language in question, Defendant is also wrong in arguing the specification lacks any written description of corresponding structure.

Second, and similarly, the terms “formatting” and “formatter to format” should be given its plain and ordinary meaning. More specifically, the specification expressly teaches that “[m]odern-day mobile terminals, such as mobile telephones, have been provided with the SMS

(Short Message Service) capability.” ’505 patent, 1:66-2:1, *see also Id.*, 3:49-50. Further, the specification teaches that “[i]t is noted that SMS standards provide for sending multiple short messages which are combined by the recipient” (*Id.*, 4:8-10), showing that the SMS standard was well known at the time of the invention. Next, the specification expressly discloses “the SMS programming in the mobile terminal” (*Id.*, 4:26-27), further confirming that mobile terminals include SMS and SMS formatting capability. Finally, the specification expressly states that “the specific details of the SMS protocol... have not been included in the present specification for the sake of brevity. It is understood that these industrywide protocols are readily available and the details thereof are incorporated by reference herein in their entirety.” *Id.*, 4:46-51. Therefore, as the specification expressly discloses, SMS capability, and thus the capability to format SMS messages, were already provided into mobile terminals at the time of invention.

Finally, Defendant contends “Lack of Written description under 35 U.S.C. § 112(a),” however, as courts in this district have already noted: “patent validity arguments like lack of enablement and lack of written description **are not proper during claim construction proceedings.**” *USB Bridge Sols. v. Buffalo Inc.*, Cause No. 1-17-CV-001158-LY, Dkt. 69, at 10-11 (W.D. Tex. Apr. 17, 2020) (emphasis added) *citing Evicam Int’l, Inc. v. Enft Video, LLC*, 2016 WL 6470967, at \*14 (E.D. Tex. Nov. 2, 2016); *see also Phillips*, 415 F.3d at 1327 (“[W]e have certainly not endorsed a regime in which validity analysis is a regular component of claim construction.”).

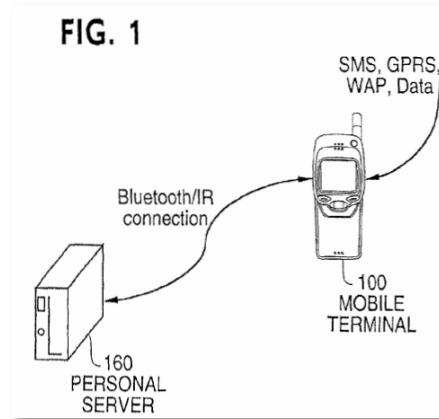
## 2. “data message receiver” (Claim 14)

| WSOU’s Proposed Construction | Defendant’s Proposed Construction   |
|------------------------------|---|
| Plain and ordinary meaning   | Indefinite under 35 U.S.C. § 112(b)<br>Lack of Written description under 35 U.S.C. § 112(a) |

This term should be given its plain and ordinary meaning. First, Defendant contends “Lack

of Written description under 35 U.S.C. § 112(a).” However, as courts in this district have already noted, “patent validity arguments like lack of enablement and lack of written description **are not proper during claim construction proceedings.**” *USB Bridge Sols. v. Buffalo Inc.*, Cause No. 1-17-CV-001158-LY, Dkt. 69, at 10-11 (W.D. Tex. Apr. 17, 2020) (emphasis added) *citing Evicam Int'l, Inc. v. Enft Video, LLC*, 2016 WL 6470967, at \*14 (E.D. Tex. Nov. 2, 2016); *see also Phillips*, 415 F.3d at 1327 (“[W]e have certainly not endorsed a regime in which validity analysis is a regular component of claim construction.”).

Next, Defendant also contends that this term is “Indefinite under 35 U.S.C. § 112(b),” but Defendant is wrong. This term should be given its plain and ordinary meaning. Claim 14 itself recites “a mobile terminal device comprising...”, and Claim 21, further recites “The device of claim 14, wherein the data receiver receives data messages via one of an IR (Infrared) or Bluetooth communication link.” ’505 patent, 6:1-3. As the claims themselves disclose, the data message receiver is a mobile terminal device capable of a communication link such as IR or Bluetooth. Furthermore, the specification also teaches that “there are personal portable server devices presently available which only have short range connection capabilities, such as IR (Infrared) or Bluetooth. Accordingly, at present, they are unable to synchronize data with remotely located terminals which are out of their limited communication range.” *Id.*, 1:57-62. The specification also teaches that “[m]any such modern-day mobile terminals include IR or Bluetooth capability which allows them to communicate with the aforementioned personal portable servers.” *Id.*, 2:9-12. Accordingly, in an exemplary embodiment, the specification teaches that “A personal server 160, for example, is connected to the mobile terminal 100 via a short range connection such as Bluetooth or IR.” *Id.*, 3:4-6. This is illustrated by the following excerpted part of Figure 1:



Thus, the specification as well as the claim language itself informs one of skill in the art at the time of the invention “about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910-11 (2014).

### 3. “SMS (Short Message Service)” (Claims 1, 14, 23)

| WSOU’s Proposed Construction | Defendant’s Proposed Construction                                       |
|------------------------------|---|
| Plain and ordinary meaning   | Cellular based messages of limited size consisting of text and numbers. |

This term should be given its plain and ordinary meaning. Defendant’s proposed construction is vague and confusing. For example, it is unclear what Defendant intends as to a “cellular based message[.]” Whereas the specification provides that SMS is a store and forward service, “that is, short messages are not sent directly from sender to recipient but rather are sent via an intermediary SMS center instead.” ’505 patent, 2:1-7. Moreover, the specification expressly teaches that “[m]odern-day mobile terminals, such as mobile telephones, have been provided with the SMS (Short Message Service) capability.” *Id.*, 1:66-2:1, *see also, Id.*, 3:49-50. Further, the specification teaches that “[i]t is noted that SMS standards provide for sending multiple short messages which are combined by the recipient” (*Id.*, 4:8-10), showing that the SMS standard was well known at the time of the invention. Finally, the specification expressly states that “the specific details of the SMS protocol... have not been included in the present specification for the sake of

brevity. It is understood that these industrywide protocols are readily available and the details thereof are incorporated by reference herein in their entirety.” *Id.*, 4:46-51. Accordingly, no construction of this term is necessary.

### **III. U.S. Patent No. 8,179,960 (Case No. 6:20-cv-00490) Claim Terms**

#### **A. Overview of the '960 Patent**

The '960 patent is generally directed to techniques of improving block-based video coding and decoding. The '960 patent summarizes certain technical problems in the field that existed at the time, over a decade ago. '960 patent, 1:15-58. At the time of invention, most major standard video codecs achieved a data compression advantage over still image coding techniques by using a block-based, motion-compensated prediction scheme. Block-based schemes treated (typically rectangular) regions of pixels as a single unit, and typically encoded such units using one of two broad methods. The first method was to independently code the block without reference to other blocks at all (intra-coding), or to code a block relative to some surrounding pixel values (intra-prediction). The second method was to code a block by providing a pointer to a similar, previously coded block which is used as a reference, and to further provide an error block that indicates the differences between the reference block and the block to be coded (inter-coding). *Id.*, 15-44. While there had been efficiency gains made in the second method through increasingly better ways of specifying a reference block, even with the best video coding technique at the time, the bandwidth required for video transmission systems and for wireless video applications still exceeded the capabilities of those coding techniques, which limited either the quality or the quantity of the resultant video. *Id.* That is at least in part because certain limitations existed in the then-current video coding techniques. A first limitation was that the reference blocks used in the then-current video coders must necessarily be part of a previously decoded video frame. That is, the reference block must necessarily be based on an actual part of the video as presented in an actual video

frame. A second limitation was that the reference blocks must be updated en masse, as part of a slice or frame. That is, while the encoders at the time could save multiple slices or frames to use as references, ultimately some finite limit is chosen to fix the storage required at the decoder. *Id.*, 1:62-2:11.

In a preferred embodiment, the '960 patent provides a method in which virtual reference data (e.g., virtual reference blocks) are employed by a video encoder to significantly improve efficiency as compared to codecs that existed at the time. Specifically, a “virtual reference” is defined as a group of pixels (e.g., a block) that is used as reference material for encoding portions of the video signal (e.g., a motion-compensated inter-predicted block) but that does not comprise or represent any portion of the actual video sequence to be displayed. For example, it may be advantageously determined that portions of the video sequence may be efficiently represented as a motion-compensated block of pixel values which are generated by the video coder based on the blocks being predicted but do not represent any actual block in any of the actual video frames or slices. *Id.*, 2:12-3:7.

## **B. Terms with Disputed Constructions**

### **1. “virtual reference” (Claims 1, 2, 3, 9, 10, 15, 16, 17, 23, and 24)**

| <b>WSOU’s Proposed Construction</b>  | <b>Agreed Upon Construction</b>   |
|--|---|
| a group of pixels (e.g., a block) that is used as reference material for encoding portions of the video signal (e.g., a motion-compensated inter-predicted block), but that does not comprise or represent any portion of the actual video sequence to be displayed. | A group of pixels used as reference material for encoding portions of the video signal, but that does not comprise or represent any portion of the actual video sequence to be displayed. |

While it appears Defendant’s proposed construction is largely derived from the express lexicography provided by the specification, Defendant’s proposed construction is nonetheless a paraphrasing of the express definition provided by the specification. This term should be given the exact definition recited by the specification: “a group of pixels (e.g., a block) that is used as

reference material for encoding portions of the video signal (e.g., a motion-compensated inter-predicted block), but that does not comprise or represent any portion of the actual video sequence to be displayed.” ’960 patent, 2:17-22; Abstract.

**2. “does not represent any portion of any individual frame of the original video signal” (Claims 1, 9, 15, 23)**

| <b>WSOU’s Proposed Construction</b> | <b>Defendant’s Proposed Construction</b>   |
|-------------------------------------|--|
| Plain and ordinary meaning          | Data generated based on a portion of a video signal but not to be displayed with the video signal. |

This term should be given its plain and ordinary meaning. The full phrase provides all of the context and requirements necessary, for example, in Claim 1, the relevant portion recites: “wherein the generated virtual reference data does not represent any portion of any individual frame of the original video signal which is to be displayed in said subsequent video display thereof.” ’960 patent, 12:2-5; *see also Id.*, 13:13-16 (Claim 9), 14:5-8 (Claim 15), 15:16-19 (Claim 23). Defendant’s proposed construction fails to address the entire phrase and at best attempts to re-write the claim language, which is unnecessary and unhelpful.

**3. “minimize differences”**

| <b>WSOU’s Proposed Construction</b> | <b>Defendant’s Proposed Construction</b> |
|-------------------------------------|--|
| Plain and ordinary meaning          | Indefinite under 35 U.S.C. § 112(b)      |

This term should be given its plain and ordinary meaning. To the extent Defendant will argue that this is a term of degree, “the court must determine whether the patent provides some standard for measuring that degree.” *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015). This standard must “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Id.* at 1379 (quoting *Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014)). “The degree of precision necessary for adequate claims is a function of the nature of the subject matter.” *Id.* at 1382 (quoting *Miles Labs., Inc. v. Shandon, Inc.*, 997

F.2d 870, 875 (Fed. Cir. 1993)) (quotation modification marks omitted). But "absolute or mathematical precision is not required." *Id.* at 1381 (*quoting Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371-72 (Fed. Cir. 2014)). The specification provides the standard for "minimizing differences." For example, the specification, first teaches that:

"Most major standard video codecs (i.e., coders and decoders) achieve a data compression advantage over still image coding techniques by using a block-based, motion-compensated prediction scheme. **Such schemes are fully familiar to those of ordinary skill in the art...**

....

The second method is to code a block by providing a pointer to a similar, previously coded block which is used as a reference, and to further **provide an error block that indicates the differences between the reference and the block to be coded** (i.e., inter-coding)." '960 patent, 1:15-34 (emphasis added).

The above passage, from the BACKGROUND OF THE INVENTION section, shows that indicating the differences between a reference block and a block to be coded was well known in the art. Then the specification teaches:

"In the H.264 standard encoder, for example, the Context-Adaptive Variable Length Coding (CAVLC) entropy coder (which is also familiar to those skilled in the art) is used as a lossless compression method well suited for block-based video coding. In a typical case, the error is a quantized difference between the discrete cosine transform (DCT) coefficients of the predicted pixels and the DCT coefficients of the actual pixels. (The use of DCT coefficients in video coding is also fully familiar to those of ordinary skill in the art.) **In general, the encoding is more efficient if there are many differences which are equal to zero, but it is still highly efficient if the (absolute value of the) difference of select non-zero terms is equal to 1. An occasional absolute difference greater than 1 in these select terms breaks the efficiency of the entropy coder and requires a disproportionately large number of bits to encode.**" '960 patent, 3:62-4:10 (emphasis added).



As shown by the passages above, the specification provides a standard for determining whether a difference is minimized, which is where the absolute value of the difference is as close to zero as possible (as an example, 1 or less). Therefore, this term is not indefinite.

#### **IV. U.S. Patent No. 8,730,905 (Case No. 6:20-cv-00491) Claim Terms**

##### **A. Overview of the '905 Patent**

The '905 patent is generally directed to techniques for acquiring transmission resources during a transmission period. At the time of invention, Wireless Local Area Network (WLAN) had already undergone development and improvement to increase throughput such as by 802.11b, 802.11a, 802.11g, and 802.11n task groups. 802.11ac was another task group at the time that was developing WLAN radios that operate at a frequency spectrum below 6 GHz and especially at 5 GHz, and there existed at the time other task groups within the IEEE 802.11 standardization. '905 patent, 1:12-29. At the time, channelization rules for 802.11ac radios were under development. The rules define the frequency channels available for 802.11ac transmitters, which are based on a scheme of primary and secondary radio channels. The scheme follows a principle where each network or basic service set (BSS) has a primary channel and zero or more secondary channels. The primary channel is used for channel contention and transmission opportunity (TXOP) is gained based on carrier sensing on the primary channel. *Id.*

In a preferred embodiment, the '905 patent provides a method of acquiring, in a first wireless communication apparatus, a transmission period to transmit data on a first frequency band within a determined transmission time interval; determining to utilize a bandwidth higher than that of the first frequency band during the transmission period; causing transmission of a reservation request message to at least a second wireless communication apparatus, wherein the reservation request message instructs the second wireless communication apparatus to reserve at least one additional frequency band for the first wireless communication apparatus during the transmission

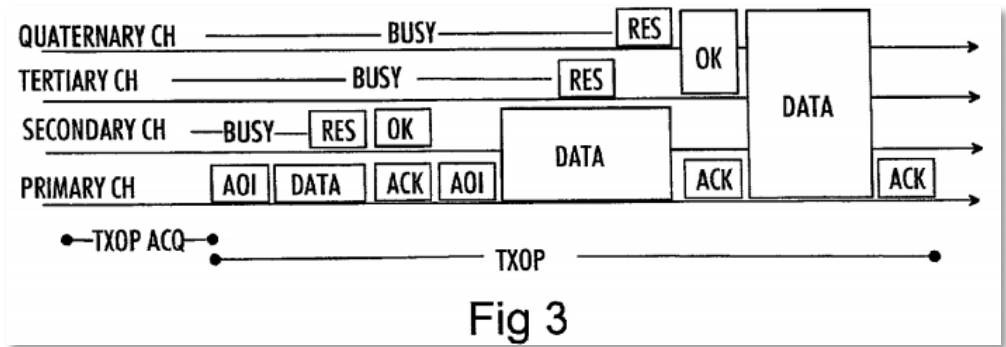
period; receiving a reservation response message from the at least second wireless communication apparatus, wherein the reservation response message indicates that said at least one additional frequency band is available for the first wireless communication apparatus to use during the transmission period; and in response to the reception of the reservation response message, increasing transmission band to comprise the first frequency band and the at least one additional frequency band during the transmission period. *Id.*, 1:33-53.

## B. Disputed Claim Terms

### 1. “during a time interval between data transmission intervals during the transmission period” (Claims 4, 15)

| WSOU’s Proposed Construction | Defendant’s Proposed Construction   |
|------------------------------|-------------------------------------|
| Plain and ordinary meaning   | Indefinite under 35 U.S.C. § 112(b) |

This term should be given its plain and ordinary meaning. The claim language itself is fully descriptive, and the specification also provides various exemplary embodiments, such as those illustrated by Figure 3, where the specification teaches: “Upon transmitting the reservation message, the reserving STA may transmit the reservation response message (**OK in the Figures**) to the TXOP holder. **The reservation response message may be communicated (transmitted and received) during a time interval between data transmission intervals during the transmission opportunity.**” ’905 patent, 8:58-61 (emphasis added); *see also Id.*, 8:7-61, Figs. 3-9. Figure 3 illustrates that the reservation response message (“OK”) is transmitted and received in a time period during the transmission period (TXOP) and between data transmission intervals (DATA):



2. “at least one frequency channel indicator” (Claims 5, 16)

| WSOU’s Proposed Construction | Defendant’s Proposed Construction   |
|------------------------------|-------------------------------------|
| Plain and ordinary meaning   | Indefinite under 35 U.S.C. § 112(b) |

This term should be given its plain and ordinary meaning. The full claim term is “at least one frequency channel **indicator indicating the at least one additional frequency band** that is to be reserved by the second wireless communication apparatus.” *See e.g.*, ’905 patent, 19:24-27 (Claim 5) (emphasis added), 21:3-6 (Claim 16). The plain language of the claim itself provides that the “at least one frequency channel indicator” is an indicator of at least one additional frequency band. Further, the specification teaches that the channelization rules for 802.11ac radios define the frequency channels available, having a primary channel and zero or more secondary channels (*Id.*, 1:21-28), and in an exemplary embodiment where, after acquiring a transmission period on a first frequency band, seeking to reserve additional frequency bands by sending a reservation request message which includes at least one indicator that indicates at least one additional frequency band that is to be reserved (*Id.*, 1:33-63).

3. “causing the transmission of the reservation message on each frequency band separately” (Claims 9, 21)

| WSOU’s Proposed Construction | Defendant’s Proposed Construction   |
|------------------------------|-------------------------------------|
| Plain and ordinary meaning   | Indefinite under 35 U.S.C. § 112(b) |

This term should be given its plain and ordinary meaning. The claim language is self-explanatory, but for full context, the full claim term recites: “wherein second wireless communication apparatus is requested to reserve a plurality of frequency bands, the method further comprising causing the transmission of the reservation message on each frequency band separately.” ’905 patent, 20:1-5 (Claim 9), 21:56-61 (Claim 21). As expressly recited by the claim language, where it is requested to reserve a plurality of frequency bands, the reservation message is transmitted on each frequency band. Furthermore, the specification discloses various exemplary embodiments, such as the one discussing Figures 3 and 4, and Figure 5:

“In the embodiments of FIGS. 3 and 4, the reserving STA is configured to reserve the channels by transmitting the reservation messages individually on the channels being reserved (one reservation message at a time).” *Id.*, 10:20-23.

“In the embodiment of FIG. 5, the reserving STA is configured to transmit the reservation messages concurrently on a plurality of channels that are to be reserved. Accordingly, each reservation message comprises separate PLCP and MAC (Medium Access Control) headers. An advantage of providing separate messages, e.g. 20 MHz bandwidth, is that even those communication apparatuses supporting only IEEE 802.11a are able to receive the reservation messages and apply the NAV setting.” *Id.*, 10:23-31.

Figures 3 and 5 (reproduced below) illustrate the above embodiments, where the reservation messages (RES) are transmitted one at a time (Figure 3), and where the reservation messages are transmitted concurrently (Figure 5), but in both cases, the reservation messages are transmitted on each frequency band separately:

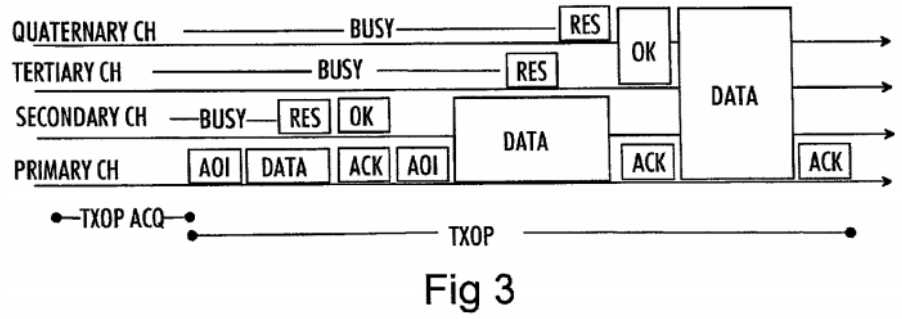


Fig 3

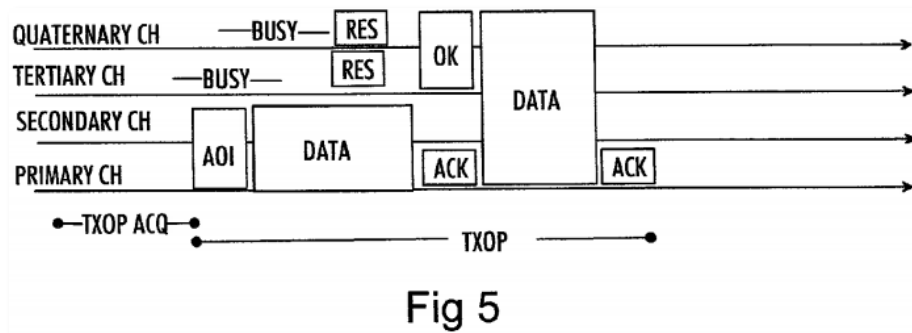


Fig 5

As another example, in further discussing Figure 3, the specification recites that in the situation where the TXOP holder decides to try to reserve additional transmission band(s), the TXOP holder attempts to reserve the tertiary or quaternary channel and instructs a terminal station (STA) to reserve the tertiary and quaternary channels, and upon detection of the channels becoming available, the STA transmits the reservation message (RES) on both the tertiary and quaternary channels as shown in Figure 3. *Id.*, 9:11-35.

## V. U.S. Patent No. 9,294,060 (Case No. 6:20-cv-00493) Claim Terms

### A. Overview of the '060 Patent

The '060 patent is generally directed to techniques for extending the bandwidth of an audio signal. '060 patent, 1:5-8. The '060 patent summarizes certain technical problems in the field that existed at the time. *Id.*, 1:13-2:2. At the time of invention, audio signals may be limited to a bandwidth which was typically determined by the capability of the transmission system or storage

medium, but in some instances, it was desirable to perceive the decoded audio signal at a higher bandwidth than the bandwidth at which the audio signal was originally encoded. In those instances, artificial bandwidth extension may be used where the bandwidth of the audio signal may be extended using information solely determined from the decoded audio signal itself. *Id.*, 1:16-25. There were existing methods of artificial bandwidth extension, but then existing methods could suffer from poor quality and inefficiency. *Id.*, 1:26-2:2.

In a preferred embodiment, the '060 patent solves certain problems of its time relating to bandwidth extension of an audio signal by providing a method and system comprising: generating an excitation signal from an audio signal, wherein the audio signal comprises a plurality of frequency components; extracting a feature vector from the audio signal, wherein the feature vector comprises at least one frequency domain component feature and at least one time domain component feature; determining at least one spectral shape parameter from the feature vector, wherein the at least one spectral shape parameter corresponds to a sub band signal comprising frequency components which belong to a further plurality of frequency components; and generating a sub band signal by filtering the excitation signal through a filter bank and weighting the filtered excitation signal with the at least one spectral shape parameter. *Id.*, 2:6-26.

## **B. Disputed Claim Terms**

### **1. “extracting a feature vector” (Claims 1, 10)**

| <b>WSOU’s Proposed Construction</b> | <b>Defendant’s Proposed Construction</b> |
|-------------------------------------|--|
| Plain and ordinary meaning          | Indefinite under 35 U.S.C. § 112(b)      |

This term should be given its plain and ordinary meaning. The specification and the claims provide that an audio signal comprises a plurality of frequency components ('060 patent, 2:14-15, Abstract, 29:4-5 (Claim 1), 30:15-17 (Claim 10), and a feature vector “comprises at least one frequency domain component feature and at least one time domain component feature. *Id.*, 2:16-

17, Abstract, 29:6-9 (Claim 1), 30:18-21 (Claim 10). Moreover, the specification provides numerous exemplary embodiments of extracting a feature vector, for example, in one exemplary embodiment, the specification teaches that feature extractor 407 “can in some embodiments be used to extract features from both the audio signal frame and the frequency domain transformation of the audio signal frame.” *Id.*, 10:39-44. And that in at least one embodiment, the frequency domain features can be extracted at least in part by determining the power spectral density of the frequency coefficients in the input signal. *Id.*, 10:64-11:2. Where a formula for mapping the frequency components from Hertz to the corresponding frequency component in the mel scale is provided. *Id.*, 11:16-12:27. And where the sub band energies corresponding to the first five sub bands can form the first five features of the feature vector extracted. *Id.* The specification further teaches that feature extractor 407 can in some embodiments also extract further frequency domain features from the frequency domain signal, where the further frequency domain features can be based on the centroid of the spectrum of the frequency domain signal. *See Id.*, 12:29-13:24. Where the centroid of the frequency domain signal spectrum can form the sixth component of the extracted feature vector, and a seventh frequency domain based feature vector may be derived from determining the spectral flatness of the input audio signal frame. *Id.*, 12:54-13:16.

Next, the specification teaches that feature extractor 407 “can in some embodiments also extract time domain based features from the audio signal frame by processing the time domain signal conveyed on the connection.” *Id.*, 13:16-19. Where the time domain based feature extracted by the feature extractor can be a gradient index based on the sum of magnitudes of the gradient of the speech signal in the time domain, and where the specification provides detail on how to determine such gradients. *Id.*, 13:20-64. Further, the specification teaches that a second time based feature may be extracted which is dependent on the energy ratio of the audio signal frame, and the

specification also provides detail on how to determine such a feature. *Id.*, 13:65-14:9. The specification also teaches a third time based feature for the audio signal which by determining whether the signal exhibits active or inactive regions, and where the specification discloses details on how to make such a classification. *Id.*, 14:10-52. In summary, the specification provides numerous and detailed teachings regarding processing the audio signal frame in both time and frequency domains in order to extract the feature vector.

**2. “the level value is attenuated” (Claims 1, 10)**

| <b>WSOU’s Proposed Construction</b> | <b>Defendant’s Proposed Construction</b> |
|-------------------------------------|--|
| Plain and ordinary meaning          | Indefinite under 35 U.S.C. § 112(b)      |

This term should be given its plain and ordinary meaning. There is no recitation of “the level value is attenuated” in the claims. The correct recitation of the claim term is: “the sub band energy level is attenuated when the power of the audio signal approaches an estimate of the level of noise in the audio signal.” ’060 patent, 29:20-22 (Claim 1), 30:32-34 (Claim 10). The plain language of the claims themselves provide that the sub band energy level is reduced when the power of the audio signal approaches an estimate of the level of noise in the audio signal. The specification also provides various exemplary embodiments showing the same, including an exemplary embodiment describing an adaptive attenuation technique that can reduce perceived noise in an artificially generated high band signal by filtering the energy levels associated with each sub band of the artificially generated high band signal through the use of a band energy smoother. *Id.*, 18:8-46. And where the sub band energy smoother counteracts artefacts produced as a result of a neural network selecting sub band energy levels which are too high. *Id.*, 17:34-40.

**3. “spectral shape parameter” (Claims 1, 10)**

| <b>WSOU’s Proposed Construction</b> | <b>Defendant’s Proposed Construction</b>   |
|-------------------------------------|--|
| Plain and ordinary meaning          | A sub band energy level value or a sub band gain factor based on the sub band energy level |



|  |        |
|--|--------|
|  | value. |
|--|--------|

This term should be given its plain and ordinary meaning. Defendant’s proposed construction should be rejected for improperly importing limitations not required in the claims or specification. *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1369 (Fed. Cir. 2012) (“Absent disclaimer or lexicography, the plain meaning of the claim controls.”). More specifically, the specification states that the spectral shape parameter “**may be** a sub band energy level value” and “**may be** a sub band gain factor based on the sub band energy level value” (’060 patent, 2:55-58 (emphasis added)), but the specification expressly **does not** limit spectral shape parameter to just those two parameters through the use of the phrase “may be.” Instead, the specification recites that “the at least one spectral shape parameter corresponds to a sub band signal comprising frequency components which belong to a further plurality of frequency components” (*Id.*, 2:19-23), thus the specification expressly **does not** limit spectral shape parameter as Defendant proposes. Defendant’s proposed construction should be rejected.

Dated: March 12, 2021

Respectfully submitted,

By: /s/ Ryan Loveless  
James L. Etheridge  
Texas Bar No. 24059147  
Ryan S. Loveless  
Texas Bar No. 24036997  
Brett A. Mangrum  
Texas Bar No. 24065671  
Travis L. Richins  
Texas Bar No. 24061296  
Jeffrey Huang  
Etheridge Law Group, PLLC  
2600 E. Southlake Blvd., Suite 120 / 324  
Southlake, TX 76092  
Tel.: (817) 470-7249  
Fax: (817) 887-5950  
Jim@EtheridgeLaw.com  
Ryan@EtheridgeLaw.com  
Brett@EtheridgeLaw.com  
Travis@EtheridgeLaw.com  
Jhuang@EtheridgeLaw.com

Mark D. Siegmund  
State Bar No. 24117055  
mark@waltfairpllc.com  
Law Firm of Walt, Fair PLLC.  
1508 North Valley Mills Drive  
Waco, Texas 76710  
Telephone: (254) 772-6400  
Facsimile: (254) 772-6432

*Counsel for Plaintiff WSOU Investments, LLC*

**CERTIFICATE OF SERVICE**

A true and correct copy of the foregoing instrument was served or delivered electronically via U.S. District Court [LIVE]- Document Filing System to all counsel of record on March 12, 2021.

/s/ James L. Etheridge  
James L. Etheridge